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Certificate No.: TC-5548

TEST RESULTS OF GRADATION FOR WMM

	:	CP-RW-2022-12-14-16 **Date: 02-07-2022**
ID ect Name	:	Improvements and Restoration of Roads in Ward NO. 05 (Package 01) Package Consists of 6 Works).
ıcy	:	Sri.K.R Santhosh Kumar No.4, Samruddhi, AVR Block 1st, A Main , Dhanalakshmi Layout, Virupakshapura, Bangalore-560097
omer Reference	:	BBMP/EE/BTP/WO/48/2022-23
of Receipt	:	30-06-2022
of Mix	:	WMM (Wet Mix Macadam)
of test	:	30-06-2022
Dry Weight	:	11000 Grams

Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	323	323	2.9	97.1	95-100
22.4	2044	2367	21.5	78.5	60-80
11.2	2179	4546	41.3	58.7	40-60
4.75	2166	6712	61.0	39.0	25-40
2.36	1805	8517	77.4	22.6	15-30
0.6	1202	9719	88.4	11.6	8-22
0.075	978	10697	97.2	2.8	0-5

results obtained are satisfactory as per standard requirements.

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Certificate No.: TC-5548

TEST RESULTS OF GRADATION FOR WMM

	:	CP-RW-2022-12-14-16 **Date: 02-07-2022**
ID ect Name	:	Improvements and Restoration of Roads in Ward NO. 05 (Package 01) Package Consists of 6 Works).
ncy	:	Sri.K.R Santhosh Kumar No.4, Samrudhi, AVR Block 1st, A Main , Dhanalakshmi Layout, Virupakshapura, Bangalore-560097
tomer Reference	:	BBMP/EE/BTP/WO/48/2022-23
of Receipt	:	30-06-2022
e of Mix	:	WMM (Wet Mix Macadam)
of test	:	30-06-2022
Dry Weight	:	11000 Grams

S Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	395	395	3.6	96.4	95-100
22.4	2245	2640	24.0	76.0	60-80
11.2	2798	5438	49.4	50.6	40-60
4.75	2158	7596	69.1	30.9	25-40
2.36	1266	8862	80.6	19.4	15-30
0.6	1145	10007	91.0	9.0	8-22
0.075	702	10709	97.4	2.6	0-5

results obtained are satisfactory as per standard requirements.

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TEST REPORT OF AGGEGRATE IMPACT VALUE
IS: 2386 Part IV

b ID	:	CP-RW-2022-12-14-16 **Date: 02-07-2022**
oject Name	:	Improvements and Restoration of Roads in Ward NO. 05 (Package 01) Package Consists of 6 Works).
ency	:	Sri.K.R Santhosh Kumar No.4, Samrudhi, AVR Block 1st, A Main , Dhanalakshmi Layout, Virupakshapura, Bangalore-560097
stomer Reference	:	BBMP/EE/BTP/WO/48/2022-23
te of Receipt	:	30-06-2022
pe of Mix	:	Coarse Aggregate for WMM (Wet Mix Macadam)
te of test	:	30-06-2022

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	301.2	301.2
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	81.5	78.2
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	219.2	222.5
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.5	0.5
5	Aggregate impact value	(B/A)*100	27.1	26.0
6	Aggregate impact value (Mean of two tests)	Pecentage	26.5	

ie results obtained are satisfactory as per standard requirements.

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TERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE(IS 2386 (Part 1) 1963 (RA 2007)

b ID	:	CP-RW-2022-12-14-16 **Date: 02-07-2022**
oject Name	:	Improvements and Restoration of Roads in Ward NO. 05 (Package 01) Package Consists of 6 Works).
ency	:	Sri.K.R Santhosh Kumar No.4, Samrudhi, AVR Block 1st, A Main , Dhanalakshmi Layout, Virupakshapura, Bangalore-560097
stomer Reference	:	BBMP/EE/BTP/WO/48/2022-23
te of Receipt	:	30-06-2022
pe of Mix	:	Coarse Aggregate for WMM (Wet Mix Macadam)
te of test	:	30-06-2022

sult:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	9.5%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	12.1%	
mbined Flakiness and Elongation Index for WMM	21.6%	

he results obtained are satisfactory as per standard requirements.

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Quality Manager

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ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ
ಬಿಬಿಎಂಪಿ, ಬೆಂಗಳೂರು-26

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Certificate No.: TC-5548

ETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE(IS 2386 (Part 1) 1963 (RA 2007)

	:	CP-RW-2022-12-14-16 **Date: 02-07-2022**
b ID ject Name	:	Improvements and Restoration of Roads in Ward NO. 05 (Package 01) Package Consists of 6 Works).
ency	:	Sri.K.R Santhosh Kumar No.4, Samrudhi, AVR Block 1st, A Main , Dhanalakshmi Layout, Virupakshapura, Bangalore-560097
stomer Reference	:	BBMP/EE/BTP/WO/48/2022-23
te of Receipt	:	30-06-2022
pe of Mix	:	Coarse Aggregate for WMM (Wet Mix Macadam)
te of test	:	30-06-2022

sult:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	10.7%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	13.4%	
mbined Flakiness and Elongation Index for WMM	24.1%	

he results obtained are satisfactory as per standard requirements.

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Certificate No.: TC-5548

ETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE(IS 2386 (Part 1) 1963 (RA 2007)

	: CP-RW-2022-12-14-16	**Date: 02-07-2022**
b ID oject Name	: Improvements and Restoration of Roads in Ward NO. 05 (Package 01) Package Consists of 6 Works).	
gency	: Sri.K.R Santhosh Kumar No.4, Samrudhi, AVR Block 1st, A Main , Dhanalakshmi Layout, Virupakshapura, Bangalore-560097	
stomer Reference	: BBMP/EE/BTP/WO/48/2022-23	
te of Receipt	: 30-06-2022	
pe of Mix	: Coarse Aggregate for WMM (Wet Mix Macadam)	
te of test	: 30-06-2022	

sult:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	11.4%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	13.1%	
mbined Flakiness and Elongation Index for WMM	24.5%	

he results obtained are satisfactory as per standard requirements.

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TEST RESULTS OF GRADATION FOR WMM

	: CP-RW-2022-12-14-16	Date: 06-07-2022
ID / ject Name	: Improvements and Restoration of Roads in Ward NO. 05 (Package 01) Package Consists of 6 Works).	
ency	: Sri.K.R Santhosh Kumar No.4, Samrudhi, AVR Block 1st, A Main , Dhanalakshmi Layout, Virupakshapura, Bangalore-560097	
stomer Reference	: BBMP/EE/BTP/WO/48/2022-23	
e of Receipt	: 04-07-2022	
e of Mix	: WMM (Wet Mix Macadam)	
e of test	: 04-07-2022	
n Dry Weight	: 11000 Grams	

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	401	401	3.6	96.4	95-100
22.4	2144	2545	23.1	76.9	60-80
11.2	2277	4822	43.8	56.2	40-60
4.75	2179	7001	63.6	36.4	25-40
2.36	1856	8857	80.5	19.5	15-30
0.6	1044	9901	90.0	10.0	8-22
0.075	798	10699	97.3	2.7	0-5

e results obtained are satisfactory as per standard requirements.

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TEST RESULTS OF GRADATION FOR WMM

	:	CP-RW-2022-12-14-16 **Date: 06-07-2022**
ID ject Name	:	Improvements and Restoration of Roads in Ward NO. 05 (Package 01) Package Consists of 6 Works).
ncy	:	Sri.K.R Santhosh Kumar No.4, Samrudhi, AVR Block 1st, A Main , Dhanalakshmi Layout, Virupakshapura, Bangalore-560097
tomer Reference	:	BBMP/EE/BTP/WO/48/2022-23
e of Receipt	:	04-07-2022
e of Mix	:	WMM (Wet Mix Macadam)
e of test	:	04-07-2022
en Dry Weight	:	11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	378	378	3.4	96.6	95-100
22.4	2044	2422	22.0	78.0	60-80
11.2	2487	4909	44.6	55.4	40-60
4.75	2218	7127	64.8	35.2	25-40
2.36	1798	8925	81.1	18.9	15-30
0.6	1078	10003	90.9	9.1	8-22
0.075	644	10647	96.8	3.2	0-5

e results obtained are satisfactory as per standard requirements.

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Certificate No.: TC-5548

TEST RESULTS OF GRADATION FOR WMM

	:	CP-RW-2022-12-14-16 **Date: 06-07-2022**
Lab ID Project Name	:	Improvements and Restoration of Roads in Ward NO. 05 (Package 01) Package Consists of 6 Works).
	:	Sri.K.R Santhosh Kumar No.4, Samrudhi, AVR Block 1st, A Main , Dhanalakshmi Layout, Virupakshapura, Bangalore-560097
Agency	:	BBMP/EE/BTP/WO/48/2022-23
Customer Reference	:	04-07-2022
Date of Receipt	:	WMM (Wet Mix Macadam)
Type of Mix	:	04-07-2022
Date of test	:	11000 Grams
Oven Dry Weight		

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	278	278	2.5	97.5	95-100
22.4	2204	2482	22.6	77.4	60-80
11.2	2311	4793	43.6	56.4	40-60
4.75	2178	6971	63.4	36.6	25-40
2.36	1988	8959	81.4	18.6	15-30
0.6	1044	10003	90.9	9.1	8-22
0.075	488	10491	95.4	4.6	0-5

The results obtained are satisfactory as per standard requirements.

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ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ
ಪಾಲಿಕೆ ಸೌಧ, ಬೆಂಗಳೂರು-26

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Certificate No.: TC-5548

TEST RESULTS OF GRADATION FOR WMM

	:	CP-RW-2022-12-14-16 **Date: 06-07-2022**
ID ject Name	:	Improvements and Restoration of Roads in Ward NO. 05 (Package 01) Package Consists of 6 Works).
ency	:	Sri.K.R Santhosh Kumar No.4, Samrudhi, AVR Block 1st, A Main , Dhanalakshmi Layout, Virupakshapura, Bangalore-560097
tomer Reference	:	BBMP/EE/BTP/WO/48/2022-23
e of Receipt	:	04-07-2022
e of Mix	:	WMM (Wet Mix Macadam)
e of test	:	04-07-2022
n Dry Weight	:	11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	438	438	4.0	96.0	95-100
22.4	2177	2615	23.8	76.2	60-80
11.2	2377	4992	45.4	54.6	40-60
4.75	2428	7420	67.5	32.5	25-40
2.36	1798	9218	83.8	16.2	15-30
0.6	742	9960	90.5	9.5	8-22
0.075	622	10582	96.2	3.8	0-5

e results obtained are satisfactory as per standard requirements.

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Quality Manager

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TEST RESULTS OF GRADATION FOR WMM

	:	CP-RW-2022-12-14-16 **Date: 06-07-2022**
ID ject Name	:	Improvements and Restoration of Roads in Ward NO. 05 (Package 01) Package Consists of 6 Works).
ncy	:	Sri.K.R Santhosh Kumar No.4, Samrudhi, AVR Block 1st, A Main , Dhanalakshmi Layout, Virupakshapura, Bangalore-560097
tomer Reference	:	BBMP/EE/BTP/WO/48/2022-23
e of Receipt	:	04-07-2022
e of Mix	:	WMM (Wet Mix Macadam)
e of test	:	04-07-2022
n Dry Weight	:	11000 Grams

S Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	402	402	3.7	96.3	95-100
22.4	2217	2619	23.8	76.2	60-80
11.2	2178	4797	43.6	56.4	40-60
4.75	2247	7044	64.0	36.0	25-40
2.36	1355	8399	76.4	23.6	15-30
0.6	1201	9600	87.3	12.7	8-22
0.075	944	10544	95.9	4.1	0-5

e results obtained are satisfactory as per standard requirements.

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TEST RESULTS OF GRADATION FOR WMM

	:	CP-RW-2022-12-14-16 **Date: 06-07-2022**
b ID ject Name	:	Improvements and Restoration of Roads in Ward NO. 05 (Package 01) Package Consists of 6 Works).
ency	:	Sri.K.R Santhosh Kumar No.4, Samrudhi, AVR Block 1st, A Main , Dhanalakshmi Layout, Virupakshapura, Bangalore-560097
stomer Reference	:	BBMP/EE/BTP/WO/48/2022-23
te of Receipt	:	04-07-2022
pe of Mix	:	WMM (Wet Mix Macadam)
te of test	:	04-07-2022
en Dry Weight	:	11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	422	422	3.8	96.2	95-100
22.4	2144	2566	23.3	76.7	60-80
11.2	2078	4644	42.2	57.8	40-60
4.75	2314	6958	63.3	36.7	25-40
2.36	1895	8853	80.5	19.5	15-30
0.6	1054	9907	90.1	9.9	8-22
0.075	565	10472	95.2	4.8	0-5

e results obtained are satisfactory as per standard requirements.

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Certificate No.: TC-5548

TEST REPORT OF AGGEGRATE IMPACT VALUE
IS: 2386 Part IV

Lab ID : CP-RW-2022-12-14-16 Date: 06-07-2022

Project Name : Improvements and Restoration of Roads in Ward NO. 05 (Package 01) Package Consists of 6 Works).

Agency : Sri.K.R Santhosh Kumar No.4, Samrudhi, AVR Block 1st, A Main , Dhanalakshmi Layout, Virupakshapura, Bangalore-560097

Customer Reference : BBMP/EE/BTP/WO/48/2022-23

Date of Receipt : 04-07-2022

Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)

Date of test : 04-07-2022

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	299.7	299.7
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	72.5	79.5
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	226.7	219.4
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.5	0.8
5	Aggregate impact value	(B/A)*100	24.2	26.5
6	Aggregate impact value (Mean of two tests)	Pecentage	25.4	

The results obtained are satisfactory as per standard requirements.

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Quality Manager

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Certificate No.: TC-5548

TERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE(IS 2386 (Part 1) 1963 (RA 2007)

	: CP-RW-2022-12-14-16	**Date: 06-07-2022**
ID ject Name	: Improvements and Restoration of Roads in Ward NO. 05 (Package 01) Package Consists of 6 Works).	
ncy	: Sri.K.R Santhosh Kumar No.4, Samrudhi, AVR Block 1st, A Main , Dhanalakshmi Layout, Virupakshapura, Bangalore-560097	
tomer Reference	: BBMP/EE/BTP/WO/48/2022-23	
e of Receipt	: 04-07-2022	
e of Mix	: Coarse Aggregate for WMM (Wet Mix Macadam)	
e of test	: 04-07-2022	

ult:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	8.5%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	10.1%	
mbined Flakiness and Elongation Index for WMM	18.6%	

e results obtained are satisfactory as per standard requirements.

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TERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE(IS 2386 (Part 1) 1963 (RA 2007)

ID	:	CP-RW-2022-12-14-16 **Date: 06-07-2022**
ect Name	:	Improvements and Restoration of Roads in Ward NO. 05 (Package 01) Package Consists of 6 Works).
icy	:	Sri.K.R Santhosh Kumar No.4, Samrudhi, AVR Block 1st, A Main , Dhanalakshmi Layout, Virupakshapura, Bangalore-560097
omer Reference	:	BBMP/EE/BTP/WO/48/2022-23
of Receipt	:	04-07-2022
of Mix	:	Coarse Aggregate for WMM (Wet Mix Macadam)
of test	:	04-07-2022

lt:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	11.4%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	8.7%	
nbined Flakiness and Elongation Index for WMM	20.1%	

e results obtained are satisfactory as per standard requirements.

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TEST RESULTS OF GRADATION FOR BM
(IS 2386:(Part 1) 1963 (RA2011)

b ID	:	CP-RW-2022-12-14-16 **Date: 13-07-2022**
oject Name	:	Improvements and Restoration of Roads in Ward NO. 05 (Package 01) Package Consists of 6 Works).
ency	:	Sri.K.R Santhosh Kumar No.4, Samruddhi, AVR Block 1st, A Main , Dhanalakshmi Layout, Virupakshapura, Bangalore-560097
stomer Reference	:	BBMP/EE/BTP/WO/48/2022-23
te of Receipt	:	11-07-2022
pe of Mix	:	BM-Plant (Bituminous Macadam)
te of test		11-07-2022
ight of Sample(gm)	:	5000

IS Sieve Size(mm)	Weight Retained(gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Specification Limits as per MORTH specification Table 500-7(grading -2)
26.5	0	0	0	100	100
19	122	122	2.4	97.6	90-100
13.2	925	1047	20.9	79.1	56-88
4.75	2459	3506	70.1	29.9	16-36
2.36	789	4295	85.9	14.1	4-19
0.3	477	4772	95.4	4.6	2-10
0.075	152	4924	98.5	1.5	0-8
PAN	76	5000	100.0	0.0	0

e results obtained are satisfactory as per standard requirements.

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PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR BITUMINOUS MACADAM

ID	:	CP-RW-2022-12-14-16 **Date: 14-07-2022**
ct Name	:	Improvements and Restoration of Roads in Ward NO. 05 (Package 01) Package Consists of 6 Works).
cy	:	Sri.K.R Santhosh Kumar No.4, Samrudhi, AVR Block 1st, A Main , Dhanalakshmi Layout, Virupakshapura, Bangalore-560097
mer Reference	:	BBMP/EE/BTP/WO/48/2022-23
of Receipt	:	11-07-2022
of Mix	:	BM (Bituminous Macadam)
of test	:	11-07-2022

Table 500-6 : Physical Requirements fo Coarse Aggregate for Bituminous Macadam

Property	Test	Result	Specification	Method of Test
artical Shape	Flakiness Index	8.9	Combined Flakiness & Elongation Index for BM is Maximum 35%	IS:2386 Part I
	Elongation Index	10.2		
Strength	Aggregate Impact Value	222.9	Maximum 30%	IS:2386 Part IV
ecific gravity	Specific gravity	2.58	Maximum 2.7	IS:2386 Part III
ter Absorption	Water Absorption	0.28	Maximum 2%	IS:2386 Part III

esults obtained are satisfactory as per standard requirements.

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EST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

ID	:	CP-RW-2022-12-14-16 **Date: 14-07-2022**
ject Name	:	Improvements and Restoration of Roads in Ward NO. 05 (Package 01) Package Consists of 6 Works).
ncy	:	Sri.K.R Santhosh Kumar No.4, Samrudhi, AVR Block 1st, A Main , Dhanalakshmi Layout, Virupakshapura, Bangalore-560097
tomer Reference	:	BBMP/EE/BTP/WO/48/2022-23
e of Receipt	:	11-07-2022
e of Mix	:	BM(Bitumnous Macadam)
of test	:	11-07-2022

e of Binder	:	60/70
f Binder Used	:	5.0%
ght of Aggregate	:	200.0 gm
ght of Binder	:	10.0 gm
perature of water bath	:	40°C

f test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
	99.0	1.0	98.3	Minimum Retained Coating 95%
	98.5	1.5		
	97.5	2.5		

esults obtained are satisfactory as per standard requirements.

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TESTS RESULTS ON STABILITY OF MIX

Lab ID : **CP-RW-2022-12-14-16** **Date: 14-07-2022**

Project Name : Improvements and Restoration of Roads in Ward NO. 05 (Package 01) . Package Consists of 6 Works).

Agency : Sri.K.R Santhosh Kumar No.4, Samrudhi, AVR Block 1st, A Main , Dhanalakshmi Layout, Virupakshapura, Bangalore-560097

Customer Reference : BBMP/EE/BTP/WO/48/2022-23

Date of Receipt : 11-07-2022

Type of Mix : BM (Bituminous Mecadam)

Date of test : 11-07-2022

The results of the tests conducted on the Bituminous Macadam mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.38	11.42	9KN(Min)
2	Marshal flow at 60°C, mm	3.48	3.52	2-4
3	Percent air Voids	4.28	4.25	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.22	14.58	13-15
5	Percent Voids filled with Bitumen(VFB %)	68.89	70.15	65-75
6	Density, g/cc	2.41	2.42	–

* The results obtained are satisfactory as per standard requirements.

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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BM (IS 2386:(Part 1) 1963 (RA2011)

Lab ID	:	CP-RW-2022-12-14-16 Date: 19-07-2022
Project Name	:	Improvements and Restoration of Roads in Ward NO. 05 (Package 01) Package Consists of 6 Works).
Agency	:	Sri.K.R Santhosh Kumar No.4, Samrudhi, AVR Block 1st, A Main , Dhanalakshmi Layout, Virupakshapura, Bangalore-560097
Customer Reference	:	BBMP/EE/BTP/WO/48/2022-23
Date of Receipt	:	18-07-2022
Type of Mix	:	BM (Bituminous Macadam)Katgenahalli, Muneshwara Provision Store Beside Road, 3rd Main Road
Date of test	:	18-07-2022

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	A	500	500
2	Weight of the sample After extraction	B	482	483
3	Bitumen percentage	$\frac{A-B}{A} \times 100$	3.6	3.40
4	Average percentage	%	3.50	

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Lab ID : CP-RW-2022-12-14-16

Date: 19-07-2022

AFTER EXTRACTION(Trail-1)

Weight of Sample : 482 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Specification Limits as per MORTH specification Table 500-7(grading -2)
26.5	0	0	0.0	100.0	100
19	38	38	7.9	92.1	90-100
13.2	147	185	38.4	61.6	56-88
4.75	191	376	78.0	22.0	16-36
2.36	28	404	83.8	16.2	4-19
0.3	32	436	90.5	9.5	2-10
0.075	31	467	96.9	3.1	0-8

AFTER EXTRACTION(Trail-2)

Weight of Sample : 483 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Specification Limits as per MORTH specification Table 500-7(grading -2)
26.5	0	0	0.0	100.0	100
19	38	38	7.9	92.1	90-100
13.2	147	185	38.3	61.7	56-88
4.75	191	376	77.8	22.2	16-36
2.36	28	404	83.6	16.4	4-19
0.3	28	432	89.4	10.6	2-10
0.075	30	462	95.7	4.3	0-8

* The results obtained are satisfactory as per standard requirements.

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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BM (IS 2386:(Part 1) 1963 (RA2011)

Lab ID : CP-RW-2022-12-14-16

Date: 20-07-2022

Project Name : Improvements and Restoration of Roads in Ward NO. 05 (Package 01) Package Consists of 6 Works).

Agency : Sri.K.R Santhosh Kumar No.4, Samrudhi, AVR Block 1st, A Main , Dhanalakshmi Layout, Virupakshapura, Bangalore-560097

Customer Reference : BBMP/EE/BTP/WO/48/2022-23

Date of Receipt : 19-07-2022

Type of Mix : BM (Bituminous Macadam) Mk Provision Store Road

Date of test : 19-07-2022

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	A	500	500
2	Weight of the sample After extraction	B	482	481
3	Bitumen percentage	$\frac{A-B}{A} \times 100$	3.60	3.80
4	Average percentage	%	3.70	

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Lab ID : CP-RW-2022-12-14-16 Date: 20-07-2022

AFTER EXTRACTION(Trail-1)

Weight of Sample : 482 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Specification Limits as per MORTH specification Table 500-7(grading -2)
26.5	0	0	0.0	100.0	100
19	33	33	6.8	93.2	90-100
13.2	148	181	37.6	62.4	56-88
4.75	192	373	77.4	22.6	16-36
2.36	38	411	85.3	14.7	4-19
0.3	44	455	94.4	5.6	2-10
0.075	20	475	98.5	1.5	0-8

AFTER EXTRACTION(Trail-2)

Weight of Sample : 481 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Specification Limits as per MORTH specification Table 500-7(grading -2)
26.5	0	0	0.0	100.0	100
19	30	30	6.2	93.8	90-100
13.2	150	180	37.4	62.6	56-88
4.75	190	370	76.9	23.1	16-36
2.36	35	405	84.2	15.8	4-19
0.3	40	445	92.5	7.5	2-10
0.075	18	463	96.3	3.7	0-8

*The results obtained are satisfactory as per standard requirements.

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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BM (IS 2386:(Part 1) 1963 (RA2011)

Lab ID : CP-RW-2022-12-14-16

Date: 22-07-2022

Project Name : Improvements and Restoration of Roads in Ward NO. 05 (Package 01) Package Consists of 6 Works).

Agency : Sri.K.R Santhosh Kumar No.4, Samrudhi, AVR Block 1st, A Main , Dhanalakshmi Layout, Virupakshapura, Bangalore-560097

Customer Reference : BBMP/EE/BTP/WO/48/2022-23

Date of Receipt : 21-07-2022

Type of Mix : BM (Bituminous Macadam) Vidhana Soudha Layout

Date of test : 21-07-2022

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	A	500	500
2	Weight of the sample After extraction	B	483	482
3	Bitumen percentage	$\frac{A-B}{A} \times 100$	3.40	3.60
4	Average percentage	%	3.50	

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Certificate No.: TC-5548

Lab ID : CP-RW-2022-12-14-16 Date: 22-07-2022

AFTER EXTRACTION(Trail-1)

Weight of Sample : 483 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Specification Limits as per MORTH specification Table 500-7(grading -2)
26.5	0	0	0.0	100.0	100
19	35	35	7.2	92.8	90-100
13.2	152	187	38.7	61.3	56-88
4.75	177	364	75.4	24.6	16-36
2.36	44	408	84.5	15.5	4-19
0.3	42	450	93.2	6.8	2-10
0.075	19	469	97.1	2.9	0-8

AFTER EXTRACTION(Trail-2)

Weight of Sample : 482 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Specification Limits as per MORTH specification Table 500-7(grading -2)
26.5	0	0	0.0	100.0	100
19	30	30	6.2	93.8	90-100
13.2	144	174	36.1	63.9	56-88
4.75	158	332	68.9	31.1	16-36
2.36	69	401	83.2	16.8	4-19
0.3	44	445	92.3	7.7	2-10
0.075	21	466	96.7	3.3	0-8

* The results obtained are satisfactory as per standard requirements.

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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BM (IS 2386:(Part 1) 1963 (RA2011)

Lab ID	:	CP-RW-2022-12-14-16 Date: 24-07-2022
Project Name	:	Improvements and Restoration of Roads in Ward NO. 05 (Package 01) Package Consists of 6 Works).
Agency	:	Sri.K.R Santhosh Kumar No.4, Samrudhi, AVR Block 1st, A Main , Dhanalakshmi Layout, Virupakshapura, Bangalore-560097
Customer Reference	:	BBMP/EE/BTP/WO/48/2022-23
Date of Receipt	:	23-07-2022
Type of Mix	:	BM (Bituminous Macadam) Defence Colony, 6th Main Road
Date of test	:	23-07-2022

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	A	500	500
2	Weight of the sample After extraction	B	482	482
3	Bitumen percentage	$\frac{A-B}{A} \times 100$	3.60	3.60
4	Average percentage	%	3.60	

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Lab ID : CP-RW-2022-12-14-16 Date: 24-07-2022

AFTER EXTRACTION(Trail-1)

Weight of Sample : 482 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Specification Limits as per MORTH specification Table 500-7(grading -2)
26.5	0	0	0.0	100.0	100
19	33	33	6.8	93.2	90-100
13.2	148	181	37.6	62.4	56-88
4.75	162	343	71.2	28.8	16-36
2.36	48	391	81.1	18.9	4-19
0.3	44	435	90.2	9.8	2-10
0.075	25	460	95.4	4.6	0-8

AFTER EXTRACTION(Trail-2)

Weight of Sample : 482 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Specification Limits as per MORTH specification Table 500-7(grading -2)
26.5	0	0	0.0	100.0	100
19	33	33	6.8	93.2	90-100
13.2	142	175	36.3	63.7	56-88
4.75	149	324	67.2	32.8	16-36
2.36	77	401	83.2	16.8	4-19
0.3	42	443	91.9	8.1	2-10
0.075	23	466	96.7	3.3	0-8

* The results obtained are satisfactory as per standard requirements.

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Certificate No.: TC-5548

TEST RESULTS OF GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2007)

Lab ID : CP-RW-2022-12-14-16
Date: 15-07-2022
Project Name : Improvements and Restoration of Roads in Ward NO. 05 (Package 01) Package Consists of 6 Works).
Agency : Sri.K.R Santhosh Kumar No.4, Samrudhi, AVR Block 1st, A Main , Dhanalakshmi Layout, Virupakshapura, Bangalore-560097
Customer Reference : BBMP/EE/BTP/WO/48/2022-23
Date of Receipt : 13-07-2022
Type of Mix : BC-Plant (Bituminous Concrete)
Date of test : 13-07-2022
Oven Dry Weight : 5000 Grams

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-17(grading-2)
19	0	0	0.0	100.0	100
13.2	77	77	1.5	98.5	90-100
9.5	702	779	15.6	84.4	70-88
4.75	801	1580	31.6	68.4	53-71
2.36	598	2178	43.6	56.4	42-58
1.18	488	2666	53.3	46.7	34-48
0.6	524	3190	63.8	36.2	26-38
0.3	538	3728	74.6	25.4	18-28
0.15	422	4150	83.0	17.0	12-20
0.075	422	4572	91.4	8.6	4-10
PAN	428	5000	100	0.0	0

* The results obtained are satisfactory as per standard requirements.

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Certificate No.: TC-5548

TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID	:	CP-RW-2022-12-14-16
		Date: 16-07-2022
Project Name	:	Improvements and Restoration of Roads in Ward NO. 05 (Package 01) Package Consists of 6 Works).
Agency	:	Sri.K.R Santhosh Kumar No.4, Samrudhi, AVR Block 1st, A Main , Dhanalakshmi Layout, Virupakshapura, Bangalore-560097
Customer Reference	:	BBMP/EE/BTP/WO/48/2022-23
Date of Receipt	:	13-07-2022
Type of Mix	:	BC(Bitumenous Concrete)
Date of test	:	13-07-2022

Type of Binder	:	60/70
% of Binder Used	:	5.0%
Weight of Aggregate	:	200.0 gm
Weight of Binder	:	10.0 gm
Temperature of water bath	:	40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.0	2.0	98.0	Minimum Retained Coating 95%
2	99.0	1.0		
3	97.0	3.0		

* The results obtained are satisfactory as per standard requirements.

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PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR BITUMINOUS CONCRETE

Lab ID : CP-RW-2022-12-14-16

Date: 16-07-2022

Project Name : Improvements and Restoration of Roads in Ward NO. 05 (Package 01) Package Consists of 6 Works).

Agency : Sri.K.R Santhosh Kumar No.4, Samrudhi, AVR Block 1st, A Main , Dhanalakshmi Layout, Virupakshapura, Bangalore-560097

Customer Reference : BBMP/EE/BTP/WO/48/2022-23

Date of Receipt : 13-07-2022

Type of Mix : BC (Bituminous Concrete)

Date of test : 13-07-2022

Table 500-16 : Physical Requirements fo Coarse Aggregate for Bituminous Concrete

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	11.4	Combined Flakiness & Elongation Index for BC is Maximum 35%	IS:2386 Part I
	Elongation Index	10.1		
Strength	Aggregate Impact Value	23.4	Maximum 24%	IS:2386 Part IV
Specific gravity	Specific gravity	2.64	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.23	Maximum 2%	IS:2386 Part III

The results obtained are satisfactory as per standard requirements.

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Certificate No.: TC-5548

TESTS RESULTS ON STABILITY OF MIX

Lab ID : CP-RW-2022-12-14-16

Date: 16-07-2022

Project Name : Improvements and Restoration of Roads in Ward NO. 05 (Package 01) Package Consists of 6 Works).

Agency : Sri.K.R Santhosh Kumar No.4, Samrudhi, AVR Block 1st, A Main , Dhanalakshmi Layout, Virupakshapura, Bangalore-560097

Customer Reference : BBMP/EE/BTP/WO/48/2022-23

Date of Receipt : 13-07-2022

Type of Mix : BC (Bituminous Concrete)

Date of test : 13-07-2022

The results of the tests conducted on the Bituminous Concrete mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.24	11.32	10KN(min)
2	Marshal flow at 60°C, mm	3.52	3.54	2-4
3	Percent air Voids	4.78	4.63	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.18	14.16	13-15
5	Percent Voids filled with Bitumen(VFB %)	71.27	71.23	65-75
6	Density, g/cc	2.26	2.25	–

*The results obtained are satisfactory as per standard requirements.

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Certificate No.: TC-5548

DETERMINATION OF RATE OF SPREAD TACK COAT

Job : CP-RW-2022-12-14-16

Date: 20-07-2022

Project Name : Improvements and Restoration of Roads in Ward NO. 05 (Package 01) Package Consists of 6 Works).

Agency : Sri.K.R Santhosh Kumar No.4, Samrudhi, AVR Block 1st, A Main , Dhanalakshmi Layout, Virupakshapura, Bangalore-560097

Customer Reference : BBMP/EE/BTP/WO/48/2022-23

Date of Receipt : 19-07-2022

Type of Mix : Tack coat

Date of test : 19-07-2022

S.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	M	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.72	0.74
4	Final weight of plate after application of tack Coat (c)	Kg	0.745	0.764
5	Weight of tack Coat (d=c-b)	Kg	0.025	0.024
6	Rate of spread of tack coat	Kg/sq.m	0.278	0.267
7	Average	Kg/sq.m	0.272	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

*The results obtained are satisfactory as per standard requirements.

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Certificate No : TC-3545

DETERMINATION OF RATE OF SPREAD TACK COAT

	:	CP-RW-2022-12-14-16
Name	:	Improvements and Restoration of Roads in Ward NO. 05 (Package 01) Package Consists of 6 Works).
	:	Sri.K.R Santhosh Kumar No.4, Samrudhi, AVR Block 1st, A Main , Dhanalakshmi Layout, Virupakshapura, Bangalore-560097
Reference	:	BBMP/EE/BTP/WO/48/2022-23
Receipt	:	20-07-2022
Mix	:	Tack coat
test	:	20-07-2022

Date: 21-07-2022

Sl No	Determination	Unit	TEST 1	TEST 2
	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
	Area of Plate (a)	Sq.mtr	0.09	0.09
	Initial Wt of empty Plate (b)	Kg	0.73	0.72
	Final weight of plate after application of tack Coat (c)	Kg	0.754	0.744
	Weight of tack Coat (d=c-b)	Kg	0.024	0.024
	Rate of spread of tack coat	Kg/sq.m	0.267	0.267
	Average	Kg/sq.m	0.267	
	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

*The results obtained are satisfactory as per standard requirements.

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Certificate No.: TC-5548

DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : **CP-RW-2022-12-14-16**

Date: 22-07-2022

Project Name : Improvements and Restoration of Roads in Ward NO. 05 (Package 01) Package Consists of 6 Works).

Agency : Sri.K.R Santhosh Kumar No.4, Samrudhi, AVR Block 1st, A Main , Dhanalakshmi Layout, Virupakshapura, Bangalore-560097

Customer Reference : BBMP/EE/BTP/WO/48/2022-23

Date of Receipt : 21-07-2022

Type of Mix : Tack coat

Date of test : 21-07-2022

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.72	0.72
4	Final weight of plate after application of tack Coat (c)	Kg	0.744	0.745
5	Weight of tack Coat (d=c-b)	Kg	0.024	0.025
6	Rate of spread of tack coat	Kg/sq.m	0.267	0.278
7	Average	Kg/sq.m	0.272	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.

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Certificate No : 16-6618

DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : CP-RW-2022-12-14-16 **Date:** 23.07.2022

Project Name : Improvements and Restoration of Roads in Ward NO. 05 (Package 01) Package Consists of 6 Works).

Agency : Sri.K.R Santhosh Kumar No.4, Samrudhi, AVR Block 1st, A Main, Dhanalakshmi Layout, Vinupakshapura, Bangalore-560097

Customer Reference : BBMP/EE/BTP/WO/48/2022-23

Date of Receipt : 22-07-2022

Type of Mix : Tack coat

Date of test : 22-07-2022

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	MI	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.75	0.74
4	Final weight of plate after application of tack Coat (c)	Kg	0.774	0.765
5	Weight of tack Coat (d=c-b)	Kg	0.024	0.025
6	Rate of spread of tack coat	Kg/sq.m	0.267	0.278
7	Average	Kg/sq.m	0.272	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.

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DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : **CP-RW-2022-12-14-16** **Date: 24-07-2022**

Project Name : Improvements and Restoration of Roads in Ward NO. 05 (Package 01) Package Consists of 6 Works).

Agency : Sri.K.R Santhosh Kumar No.4, Samrudhi, AVR Block 1st, A Main , Dhanalakshmi Layout, Virupakshapura, Bangalore-560097

Customer Reference : BBMP/EE/BTP/WO/48/2022-23

Date of Receipt : 23-07-2022

Type of Mix : Tack coat

Date of test : 23-07-2022

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.72	0.73
4	Final weight of plate after application of tack Coat (c)	Kg	0.743	0.753
5	Weight of tack Coat (d=c-b)	Kg	0.023	0.023
6	Rate of spread of tack coat	Kg/sq.m	0.256	0.256
7	Average	Kg/sq.m	0.256	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.

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Format No: CP/TF/01

TEST REPORT ON THERMOPLASTIC COMPOUND

Lab ID	:	CP-RW-2022-12-14-16 Date: 25-07-2022
Project Name	:	Improvements and Restoration of Roads in Ward NO. 05 (Package 01) Package Consists of 6 Works).
Agency	:	Sri.K.R Santhosh Kumar No.4, Samrudhi, AVR Block 1st, A Main , Dhanalakshmi Layout, Virupakshapura, Bangalore-560097
Customer's Reference	:	BBMP/EE/BTP/WO/48/2022-23
Date of Receipt	:	20-07-2022
Sample Type	:	Thermoplastic Compound
Reference to BIS codes	:	ASTM D36/BS-3262-(Part-I)
Date of test	:	20-07-2022

Test Results

Sl.no	Name of Test	Result	Requirements as per Morth 803
1	Colour	White	White/Yellow
2	Softening Point	108°C - 109°C	102.5±9.5°C as Per ASTM D:36
3	Luminance Factor	Sartisfactory	White: Daylight Luminanceat 45-65 Percent min, as per AASHTO M:249. Yellow: Daylight lumunanace at 45-45 percent min, as per AASHTO M:249
4	Cracking Resistance	No Cracks found on application	The Material shall show no Cracks on application
5	Skid Resistance	47	Not Less than 45 as per BS:6044
6	Yellow Index (For White Thermoplastic Plant)	0.09	Not More than 0.12 as per AASHTO M:249
7	Drying Time	14	When Applied at a temperature specified by the manufacture and to the required thickness, the material shall mset to heat traffic in not more than 15 minutes
8	Binder Content % by Weight	22%	White & yellow 18 minutes as per Section 800 in Table 800-9
9	Glass Beads Content % by Weight	30	30-30

* The results obtained are satisfactory as per standard requirements.

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